San Diego DX Club Bulletin

August 2020

Meeting Programs:

Cancelled Until Further Notice

Virtual Meeting notice on Page 2

August 26, 2020 6:30 P.M.

Online Via Zoom

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From the Prez . . .

Ron, **N6XT**

SDDXC Meeting on Zoom

Time: Aug 26, 2020 06:30 PM Pacific Time (US and Canada)

Join Zoom Meeting

https://us02web.zoom.us/j/85136940423?pwd=MTlKb2FhRng0V2JZbjl1VUZLenY1QT09

Meeting ID: **851 3694 0423**

Passcode: **891198**

One tap mobile

+16699006833,,85136940423#,,,,,,0#,,891198# US (San Jose)

+13462487799,,85136940423#,,,,,,0#,,891198# US (Houston)

Dial by your location

+1 669 900 6833 US (San Jose)

+1 346 248 7799 US (Houston)

+1 253 215 8782 US (Tacoma)

+1 301 715 8592 US (Germantown)

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Ron, **N6XT**

Secretary/Treasurer Reports

Randy, **KQ6RS**

Meeting Minutes July 22, 2020

Our July meeting was held using the Zoom video conferencing application. 18 members participated. For now, we plan to continue holding club meetings on Zoom until in-person meetings can resume.

At 6:30 P.M. Pat Bunsold, WA6MHZ called the meeting to order.

The club voted and approved paying for a Zoom annual account to save the price of paying monthly ($104.93 vs $179.88, 7 months for the price of 12) since it appears in person meetings will not resume for a long time.

At 6:40 P.M. we started the roundtable.

The next meeting will be held on August 26th at 6:30 P.M.

At 7:41 P.M. the meeting was adjourned.

Treasurer's Report

Income for July:	None
Expenses for July:	$14.99 Zoom Pro
Balance on 8/2/2020	$5,411.61

Randy, **KQ6RS**

SDDXC Contest Results
By John, K6AM

2019 CQ WORLDWIDE CW DX CONTEST
(Postponed from the May edition)

CLASS	CALL	SCORE	QSO'S	MLTS	FINISH
M2	6V7A (N5ZO)	18,374,226	8,473	754	**# 1 ZONE 35,** # 2 WORLD
MM	KL7RA (Opr: KL7SB KL0R N1TX KL5T NC6K WB2TQE KF2T N7CW K6ZH.)	4,490,586	4,757	411	**# 1 ZONE 1**
SO - HP	NO6T (KI6RRN)	4,133,628	2,755	577	**# 1 ZONE 3,** #9 USA see note
SO – HP	K6NA	2,255,475	1,694	493	# 3 ZONE 3
M2	NX6T (N6KI NN6X WQ6X WM6Y K4RB N7DA N6NC)	1,953,200	1,695	475	# 2 ZONE 3**,** #14 USA
SO - HP 40M	N6CW (@W6XI)	381,760	908	160	# 3 ZONE 3
SO - LP	WN6K	165,165	412	165	# 3 ZONE 3
SA – HP	K5OA	150,586	348	206	
SO - HP 15M	W6YA	64,980	266	90	**# 1 ZONE 3,** #3 USA
SO – HP	W6JBR	52,151	165	122	

NOTE: This represents yet another win worth 1000 WRTC points for Axel, who remains in the number one position worldwide in WRTC qualifying with a perfect score (the most possible points) in all 12 qualifying events so far.

John**, K6AM**

SDDXC Contest Results
By John, K6AM

2019 CQ WORLDWIDE PHONE DX CONTEST

CLASS	CALL	SCORE	QSO'S	MLTS	FINISH
M2 - HP	ZF1A (N6MJ K6JO N6WIN JH1NBN K7ZO W9KKN NN1C)	12,759,663	9,628	623	**#1 NA,** #3 WORLD 800 WRTC pts.
SO - HP	NO6T @WA6TQT (KI6RRN OP)	2,184,660	2,038	458	**#1 W6**, #4 US, 1000 WRTC pts.
SO - HP	K6NA	428,497	515	213	#3 W6, #6 ZONE 3
M2- HP	NX6T (OPS N6KI KN6DLG NN6X WQ6X)	340,725	588	175	**#1 W6**, #2 ZONE 3
SA - HP	WN6K	217,600	339	255	#2 W6, #9 ZONE 3
SO - HP	W6JBR	48,880	146	130	

John, **K6AM**

THE SDDXC TOP 10

By John, K6AM

TOTAL COUNTRIES WORKED ON 30 METERS

4/20	4/18		CALLZNS	C-D	CFM	WKD	CHG
1.	1.	K6AM	40	319	326	328	-
2.	3.	W6YI	39	288	290	319	+4
3.	2.	K6XT	40	312	316	316	-9
4.	4.	N7CW	40	289	289	311	-
5.	5.	K6ZH	39	260	265	282	-
6.	6.	N6CW	37	?	215	275	-
7.	7.	K0XB	40	266	268	271	+5
8.	8.	WN6K	37	204	206	253	-
9.	-.	N0RR	?	223	235	239	NEW
10.	10.	WB6BFG	37	214	214	233	

TOTAL COUNTRIES WORKED ON 15 METERS

4/20	4/18		CALLZNS	C-D	CFM	WKD	CHG
1.	1.	K6AM	40	336	346	346	-
2.	2.	N6CW	40	?	331	342	-
3.	3.	W6YI	40	331	340	341	-
4.	4.	K6XT	40	319	331	331	-10
5.	5.	K0XB	40	322	329	330	-
6.	6.	N7CW	40	319	319	327	-
7.	7.	K6ZH	40	309	315	323	-
8.	9.	WN6K	40	285	294	316	+1
9.	10.	NA6L	40	298	298	301	-
10.	-.	WB6BFG	40	285	285	291	NEW

Once again not much action here at just past the low point in the cycle other than a couple of score corrections and updates. We're still under a yellow flag as all drivers hold their positions on the track while we wait for the propagation to return. 30 meters continues to be productive with some good openings worldwide but 15 is down for the count.

Each month, we will publish top ten lists for one of the lesser recognized but hard won categories. Coming up next, the other WARC bands, 160 and digital modes. Please send me your totals for each band throughout the year and you will be listed in coming months. Use the convenient form at http://www.sddxc.org or bring 'em to the meeting.

John, **K6AM**

From the Editor

Bob, **K9RHY**

In the early morning hours of August 10th, a support cable at the Arecibo Observatory pulled lose from its mount and crashed through the face of the primary reflector below. Images taken from below the iconic 305 meter dish, made famous by films such as *Contact* and *GoldenEye*, show an incredible amount of damage. The section of thick cable, estimated to weigh in at around 6,000 kilograms (13,000 pounds), had little difficulty tearing through the reflector's thin mesh construction.

Worse still, the cable also struck the so-called "Gregorian dome", the structure suspended over the dish where the sensitive instruments are mounted. At the time of this writing it's still unclear as to whether or not any of that instrumentation has been damaged, though NASA at least has said that the equipment they operate inside the dome appears to have survived unscathed. At the very least, the damage to the dome structure itself will need to be addressed before the Observatory can resume normal operations.

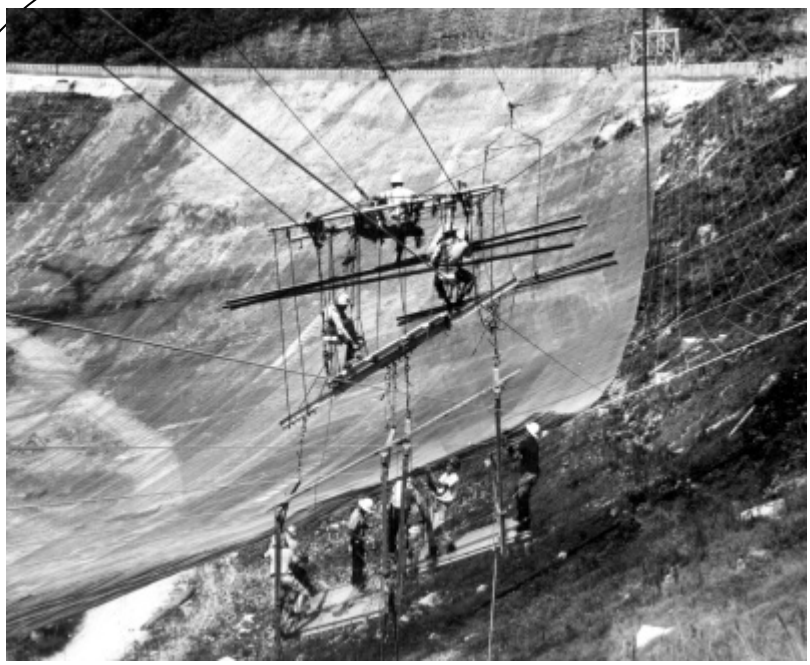
But how long will the repairs take, and who's going to pay for them? It's no secret that funding for the 60 year old telescope has been difficult to come by since at least the early 2000s. The cost of repairing the relatively minor damage to the telescope sustained during Hurricane Maria in 2017 may have been enough to shutter the installation permanently if it hadn't been for a consortium led by the University of Central Florida. They agreed to share the burden of operating the Observatory with the National Science Foundation and put up several million dollars of additional funding.

It's far too early to know how much time and money it will take to get Arecibo Observatory back up to operational status, but with the current world situation, it seems likely the telescope will be out of commission for at least the rest of the year. Given the fact that repairs from the 2017 damage still haven't been completed, perhaps even longer than that. In the meantime, astronomers around the globe are left without this wholly unique resource.

It might not be immediately obvious why the loss of Arecibo might be such a problem. After all, it's just a radio telescope. It's not even the largest one anymore, as that title was taken from it in 2016 by the Five hundred meter Aperture Spherical Telescope (FAST) in China. Surely researchers could shuffle their experiments over to other observatories?

In some cases, they likely will. But the Arecibo Observatory has a special feature that makes it unique among all of the large radio telescopes in the world. It can do something that even the much more modern FAST isn't capable of: it has the ability to *transmit*, where the others can only serve as receivers. This lets Arecibo perform radar astronomy, by transmitting microwaves and observing how they reflect off of distant objects. ***(That's DX!)***

Workers installing the reflector's mesh panels in 1963.



Normally, transmitting is not something a radio telescope would ever be expected to do. No more than an optical telescope would be expected to project light into the sky. But the Arecibo Observatory wasn't actually designed as a radio telescope to begin with, at least, not primarily. Its original goal was to help detect nuclear intercontinental ballistics missiles launched from the Soviet Union.

In the late 1950s, the Advanced Research Projects Agency (now known as DARPA) started looking into ways to detect incoming ICBMs as they reentered the Earth's atmosphere. It was generally understood that a object traveling at reentry speeds through the atmosphere would leave a ionized trail in its wake, and that further, this would show up as a distinctive radar signature. But there was little hard data on the subject, and even less was known about the region of the upper atmosphere known as the ionosphere.

To help fill in these gaps, and hopefully produce a reliable way of detecting and tracking potential ICBM warheads, a contract between Cornell University and the ARPA led to the construction of what was then called the Arecibo Ionospheric Observatory in 1963. By sending powerful radar transmissions into the ionosphere and studying the returning echo, the installation would be able to study electromagnetic interactions at the wispy edges of the atmosphere.

REACHING FOR THE STARS

The field of radio astronomy was still in its infancy when the dish was built, but it didn't take long before the true scientific value of Arecibo became apparent. The study of the ionosphere certainly had value, but the sensitive equipment at the observatory could see much farther than that. Within a decade of coming online, data from the dish was able to confirm the existence of neutron stars and identify the first binary pulsar.

The installation's ability to transmit signals into deep space also held tantalizing possibilities. In 1974 researchers broadcast what has come to be called the Arecibo Message towards the star cluster M13. This 210 byte burst of digital information included simple images of the human form and the radio telescope itself.

It represented the first, and to date only, concerted attempt to directly communicate with potential extraterrestrial life. The composers of the message, which included Frank Drake and Carl Sagan, didn't really expect a reply; but the fact that humanity was capable of sending it in the first place was seen as a technological turning point.

In 1989, Arecibo was able to capture the first direct images of an asteroid in space. Usually asteroids are too far away and too small to be more than a spec of light through an optical telescope, but when viewed by radar, the shape and rotation of *Castalia* could be observed easily.

Data collected by the dish in 1990 would later be used to confirm for the first time the existence of planets outside of our own solar system. We now know there to be thousands of these so-called exoplanets, and more are still being discovered thanks to dedicated planet-hunting spacecraft that owe their origins to Arecibo.

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